

REMARKS

The §101 Rejections

With respect, the Examiner has not stated any proper basis for rejection of claims 31-51 under 35 U.S.C. 101.

Claim 31 clearly specifies a “useful, concrete and tangible result” in its second element which reads:

“a price generation program portion for generating a binding price quotation based upon the one or more manufacturing criteria.”

That price is just as “useful, concrete and tangible” as the information which was generated in the seminal case of State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 47USPQ2d 1596 (Fed. Cir. 1998)

It does not matter that claim 31 is written in “computer readable media” format, and that the program has to be “executed by the computer” to generate this result. Thousands of patents have been issued using this claim format, and more are being issued every day. Just to illustrate, Applicant’s attorney searched the phrase “computer readable medium” in the claims portion of the USPTO database on Oct. 21, 2004 and got 13,867 hits as shown on the attached Exhibit A. The first five of those hits were reviewed, and all five show issued claims in the same format as claim 31. The relevant claims of those five patents have also been printed out and included in Exhibit A.

With respect, the 35 U.S.C. 101 rejection is improper and should be withdrawn.

The Substantive Rejections

The various substantive rejections have been based upon either U.S. Patent No. 6,343,285 to Tanaka et al. or U.S. Patent Application Publication No. 2001/0023418 to Suzuki et al.

The Suzuki et al. rejections are most easily addressed, and thus will be dealt with first. With respect, the Examiner has overlooked the fact that Suzuki et al. is not properly citable as a reference against the present application, because the effective filing date of Suzuki et al. is after the filing date of the present application. The present application was filed on December 13, 2000. Suzuki et al. was not filed until January 25, 2001. Although Suzuki et al. claims a foreign application priority date in Japan as of March 15, 2000, that foreign application priority date is not effective as against the present application. The Examiner is referred to MPEP §2136.03 which reads as follows:

“35 U.S.C. 102(e) is explicitly limited to certain references ‘filed in the United States before the invention thereof by the applicant’ (emphasis added). Foreign applications filing dates that are claimed...in applications which have been published as U.S. or WIPO application publications or patented in the U.S., may not (emphasis in original) be used as 35 U.S.C. 102(e) dates for prior art purposes.”

Thus, Applicant will turn its attention solely to the rejections based upon the Tanaka et al. reference.

Before addressing the specific features of the pending claims which are not taught by the Tanaka et al. reference, it is helpful to review in general the subject of the present invention and the very different subject of the Tanaka patent.

The present application is directed to apparatus and methods for automatic quoting of unique previously non-existent custom manufactured parts from a variety of manufacturing processes and materials. The customer who desires a quotation for the manufacture of the part, provides a CAD file describing the part's geometry, and the computer analyzes the CAD file and automatically calculates and provides to the customer a firm price quotation for the custom manufactured part. Optionally, the client may be permitted to select from one of a plurality of available manufacturing processes and/or to select one of a plurality of available materials from which the part can be manufactured, and/or to select one of a plurality of available surface finishes to be used on the part, and/or to select a quantity of the part to be manufactured. Thus, barring unusual circumstances which might require intervention by a human employee of the proprietor of the automated quoting process, the potential customer simply inputs his or her CAD file, optionally selects from available processes, materials, finishes and quantities, and is automatically provided with a firm binding price quotation.

This is in sharp contrast to the Tanaka et al. system which has absolutely nothing to do with automated quotation of prices for custom manufactured parts.

The Tanaka et al. system is one which would be used by a sales engineer or similar employee of the proprietor of the program (“The apparatus is structured on the premise that an employee of the company manufacturing such a tension leveller operates it.”, Tanaka et al. column 4 lines 59-61).

The Tanaka et al. system aids such an employee of the proprietor (hereafter referred to as the “sales engineer”) in specifying the components of a very complex piece of manufacturing equipment and providing a quotation for the manufacture of the equipment. The example illustrated in Tanaka et al. is known as a “tension leveller” which is best illustrated in Fig. 7 of Tanaka et al., and which is utilized to manufacture various predetermined products from rolls of strip metal material, such as for example aluminum beverage cans. Other exemplary products are shown for example in Fig. 11 of Tanaka et al.

Very significantly, Tanaka et al. does not involve the loading of a CAD file of the customer describing either the manufacturing equipment or the product such as the aluminum can which is to be manufactured. The CAD file in the Tanaka et al. reference is one that is previously installed by the proprietor of the program and which includes a previously defined design, with optional components, for the tension leveller machine which is to be quoted.

Thus the “sales engineer” operator of the program, who again is an employee of the program proprietor, utilizes the program to aid in quoting a price for the manufacturing equipment, e.g. the tension leveller, which the program proprietor is hoping to sell to its customer. That customer, in turn, would utilize the

manufacturing equipment, e.g. the tension leveller, to manufacture aluminum cans or whatever.

The premise of the Tanaka et al. program is that the sales engineer can visit the customer's site and gather data about the products to be manufactured and about the manufacturing equipment that is desired, and can input that data into the program, which preferably resides on a laptop computer carried with the sales engineer to the customer's site. Based upon the information which the sales engineer manually inputs into the program (for example, the desire to manufacture cylindrical cans out of aluminum) and based upon other optional component selections that the sales engineer manually inputs into the program based upon the customer's desired features for the manufacturing equipment, the sales engineer can then generate a quotation which is provided to the customer. That quotation is a price for the manufacturing equipment, e.g. the tension leveller.

No CAD file of the customer describing either ultimate products or the manufacturing equipment used to make those products is ever input into the program. The customer itself never interacts with the program. The price quotation which is generated is not something automatically done based upon a CAD file, but is instead the result of a substantial amount of human interaction between the sales engineer and the program as the sales engineer manually inputs various data describing both the ultimate product and the desired operating features of the manufacturing equipment. The price which is quoted in Tanaka is for the manufacturing equipment, not for the product made with that equipment.

Even the ultimate products being manufactured with the machine being quoted by the Tanaka et al. sales engineer are not “custom manufactured parts” but instead are standard thin-sheet formed parts such as, for example, aluminum cans. Those products are all manufactured by the same manufacturing process, forming from thin-sheet material.

Turning now to the several independent claims of the present application, the many deficiencies in Tanaka et al. as an anticipating reference for those claims will be pointed out.

Claim 1

Claim 1 of the present application reads as follows:

1. A method of providing a firm price quotation for a custom manufactured part, comprising:
 - (a) permitting a client to access a server computer system from a client computer over a global communication network;
 - (b) uploading from the client computer to the server computer system a computer aided design (CAD) file describing the custom manufactured part;
 - (c) analyzing the CAD file on the server computer system to determine one or more manufacturing criteria for the custom manufactured part;
 - (d) calculating in the server computer system a firm price quotation for the custom manufactured part based upon the one or more manufacturing criteria; and
 - (e) transmitting the price quotation to the client computer over the global communication network.

The Tanaka et al. reference is missing at least the following elements and thus for these reasons neither anticipates nor makes obvious the invention of claim 1:

1. Tanaka et al. does not provide a price quotation for “a custom manufactured part” but instead provides a price quotation for a piece of manufacturing equipment such as a tension leveller.
2. With reference to step (a), in the Tanaka system, even if the estimation program is accessed over a global communication network, that access is not conducted by the client, but instead is conducted by an employee of the program proprietor.
3. With reference to step (b), the Tanaka system never loads onto any computer a CAD file describing a custom manufactured part desired by the customer. The only CAD file involved in the Tanaka system is one previously provided by the system proprietor which contains drawings for the basic manufacturing equipment (e.g. tension leveller) and optional features thereof which were previously designed by the system proprietor. There simply is no customer CAD file involved in the Tanaka system.
4. With reference to step (c), the Tanaka system does not analyze any CAD file to determine one or more manufacturing criteria for a custom manufactured part.

5. With reference to step (d), Tanaka does not calculate a price quotation for a custom manufactured part, and certainly does not calculate such a price quotation based upon one or more manufacturing criteria determined by the analysis of step (c).
6. Finally, with regard to step (e), the Tanaka system does not transmit a price quotation to a client's computer. If in fact there is transmission of data between computers, that information is transmitted to the sales engineer's laptop computer when the sales engineer is present at the customer's facility.

In sum, the Tanaka system has absolutely nothing to do with quoting prices for unique, custom manufactured parts without human intervention.

Independent Claim 31

Independent claim 31 reads as follows:

31. A program stored in a computer readable media for generating binding price quotations for custom manufactured parts comprising:

a CAD file analysis program portion for receiving a CAD file and analyzing the CAD file to determine one or more manufacturing criteria corresponding to each custom manufactured part; and

a price generation program portion for generating a binding price quotation based upon the one or more manufacturing criteria.

The Tanaka et al. reference has at least the following deficiencies as an anticipating reference to claim 31:

1. Again, Tanaka et al. does not generate price quotations for “custom manufactured parts”.
2. The Tanaka et al. system does not have “a CAD file analysis program portion”. The Tanaka et al. system does not receive a CAD file. The Tanaka et al. system does not analyze a CAD file. The Tanaka et al. system does not analyze any file to determine one or more manufacturing criteria corresponding to a custom manufactured part.
3. The Tanaka et al. system does not include a price generation program portion for generating a binding price quotation based upon the one or more manufacturing criteria. Instead, the most Tanaka does is provide a table of price quotations for selected components of a previously designed manufacturing equipment like the tension leveller illustrated in Fig. 7 of Tanaka.

Independent Claim 52

Independent claim 52 reads as follows:

52. A method of providing a firm price quotation for a custom manufactured part, comprising:
 - (a) loading onto a computer system a computer aided design (CAD) file describing the custom manufactured part;

- (b) analyzing the CAD file on the computer system without human intervention to determine one or more manufacturing criteria for the custom manufactured part;
- (c) calculating in the computer system without human intervention a firm price quotation for the custom manufactured part based upon the one or more manufacturing criteria; and
- (d) displaying the price quotation.

The Tanaka et al. reference has at least the following shortcomings as an anticipating reference for the invention of claim 52:

1. Tanaka et al. does not provide price quotations for custom manufactured parts.
2. With reference to step (a), no CAD file describing a custom manufactured part is involved in Tanaka nor is such a CAD file loaded onto a computer system.
3. With reference to step (b), Tanaka does not analyze a CAD file on the computer system. Tanaka et al. does not determine manufacturing criteria for custom manufactured parts through such an analysis.
4. With reference to step (c), Tanaka et al. does not calculate a price quotation for a custom manufactured part, and certainly does not calculate a price quotation based upon manufacturing criteria which were determined by analysis of a CAD file.

Thus, with reference to all three of the independent claims of the present application the Tanaka et al. reference falls far short of either anticipating or

making obvious the invention of independent claims 1, 31 or 52. Thus each of those independent claims, and all claims dependent therefrom should be allowed over the Tanaka reference.

Although the dependent claims should be allowed for all the reasons given above for the independent claims, in the interest of a complete response Applicant will address the various comments made by the Examiner with regard to the dependent claims. These comments are in the order of the Examiner's comments beginning at the top of page 4 of the Office Action.

In general, and with the utmost respect, Applicant points out that in the following discussion of the Examiner's rejection of the various dependent claims it will be apparent that in not a single instance has the Examiner pointed to any specific teaching of Tanaka which specifically discusses any of the features of these dependent claims. The Examiner has only parroted the language of the claim and then stated that the same was shown in Tanaka and typically has made reference to substantially all of the figures of Tanaka without any indication of a specific element number or a specific column and line in the text of Tanaka that discusses any one of these features, much less all of them. Again with respect, this is not an appropriate basis of rejection of the claims. If the Examiner will take the time to closely read and understand the Tanaka reference it is believed he will agree that Tanaka is simply irrelevant to the present application and falls completely short of suggesting even the broadest independent claims of the present invention, much less the many details found in the dependent claims.

For purpose of illustration, Applicant will specifically respond to the Examiner's comments on the various claims dependent from independent claim 1. This will not be repeated for the claims dependent from independent claims 31 and 52, because the subject matter of those various dependent claims tends to be redundant of that discussed with regard to the dependent claims from claim 1. It will be understood, however, that Applicant's comments regarding the claims dependent from claim 1 are equally applicable to the analogous claims dependent from independent claims 31 and 52.

Claim 2

Claim 2 requires that step (d) be performed substantially instantaneously with a preprogrammed pricing formula. The Examiner refers to Fig. 26 of Tanaka et al. as allegedly containing such a teaching, but with respect it does not. Nothing in the Tanaka et al. reference deals with pricing formulas. All cost calculations done in Tanaka utilize data from a table. Furthermore, the cost calculation of Tanaka is not instantaneous but is only provided after a substantial period of interactive input by the human sales engineer who is providing the price quotation to the customer.

Claim 7

Claim 7 requires that “prior to step (d), permitting the client to select one of a plurality of available manufacturing processes”, and then calculating the price quotation based upon the selected manufacturing process.

Again, the Examiner merely refers to Figs. 2-24, which is of little assistance in understanding what the Examiner contends is the relevant teaching. In truth, the only manufacturing process dealt with by Tanaka is the forming of thin-sheet metal such as aluminum or steel. That is only one manufacturing process, not a plurality of manufacturing processes.

Claim 8

Claim 8 requires that the manufacturing process be an “additive manufacturing process” such as one of the many examples described in the present application at pages 7-11. These “additive manufacturing processes” as summarized at page 2 lines 15-17, “can be thought of as three dimensional printers which can take a digital file for the three dimensional part and automatically construct that part without human intervention.”

The Examiner again merely makes a grossly broad reference to “Figs. 2-24” as allegedly showing additive manufacturing processes. But clearly Tanaka et al. has absolutely nothing to do with additive manufacturing processes. The only manufacturing process discussed in Tanaka et al. is the forming of articles from sheet metal, which is not an additive manufacturing process.

Claim 9

Even more surprising is the Examiner's rejection of claim 9. Claim 9 requires that the additive process be "a stereo lithography process". The Examiner rejects that claim by reference to Fig. 11 of Tanaka. Fig. 11 of Tanaka has absolutely nothing to do with selecting manufacturing processes. Fig. 11 of Tanaka illustrates several products all of which can be manufactured by forming of sheet metal, i.e. a single manufacturing process. One can only guess that the Examiner's reference to Fig. 11 was brought about because one of the articles made from forming sheet metal and listed on Fig. 11 is "lithographic plate". With respect, the manufacturing of lithographic plates by forming sheet metal has absolutely nothing to do with "stereo lithography".

Claim 12

Claim 12 requires that the manufacturing process be a formative manufacturing process. Again, the Examiner has merely referred to Figs. 2-24 of Tanaka et al. Applicant concedes that the forming of sheet metal such as aluminum cans is in fact a formative manufacturing process. But the Examiner is reminded that the Tanaka reference merely deals with manufacturing equipment to form sheet metal into predetermined shapes such as cylindrical cans. Tanaka has absolutely nothing to do with manufacture of custom designed parts, the design of

which must be represented by a CAD file which must be analyzed by the system to determine manufacturing criteria upon which a price costing is based.

Claims 13 and 16

Claims 13 and 16 of the present invention require that one or more of the manufacturing criteria (which are determined by the analysis of the CAD file and upon which the subsequent price quotation are based) includes “volume of the part”.

Here, the Examiner’s use of the Tanaka reference reaches its most unfounded. The Examiner has not referred to any disclosure in Tanaka dealing with “volume of the part” as indeed there is none. The Examiner’s apparently gratuitous and irrelevant statement of “bigger the volume, more expensive inherently” is simply unsupported by any teaching of Tanaka.

Keep in mind that the Tanaka reference has absolutely nothing to do with estimating the cost of an individual part. The Tanaka system is used to estimate the price of a complex machine used to manufacture those parts. Is the Examiner suggesting that a machine which manufactures 16-ounce aluminum cans is going to cost more than one which manufactures 12-ounce aluminum cans? Maybe it is, maybe it’s not, but the Examiner cannot point to anything in Tanaka et al. that suggests one result or the other. And even if the manufacturing machine costs more, that is totally irrelevant to the present invention which deals solely with the costing of custom designed parts.

Claims 17, 18, 19 and 20

Claims 17-20 identify various manufacturing criteria which the present invention determines from an analysis of a CAD file and uses as a basis for a cost projection. The Examiner's supposed basis for rejection of these claims is no different and no better than that used for claims 13 and 16. The Examiner cannot point to any place in Tanaka where Tanaka discusses:

1. an analysis of the geometric extent of a part along multiple axes as required by claims 17 or 19;
2. an analysis of the surface area of a part as required by claims 18 or 20;

Claim 21

Claim 21 requires a step of "selecting one of a plurality of available materials" and then provides that the price quotation is based upon that selected material.

The Examiner refers to Fig. 10 of Tanaka et al. which does indeed involve a material selection. The material selection of Tanaka et al., however, is not used as a basis for estimating the cost of a part made from that material, but rather is an input which is used to estimate the cost of a manufacturing machine for manufacturing products from that material.

Claim 22

Claim 22 requires a step of “permitting the client to select one of a plurality of available surface finishes” and then using that surface finish along with surface area data in determining price of the custom part.

This time the Examiner refers to Figs. 3-6 of Tanaka. But a careful review of Figs. 3-6 will show that they are completely devoid of any discussion of “surface area of the part” or of “surface finishes” or anything remotely similar thereto.

Claim 24

Claim 24 includes a step of “permitting the client to select a quantity of the part greater than one”.

Once again the Examiner provides absolutely no basis for his rejection other than his grossly broad reference to “Figs. 3-26” of Tanaka et al. But once one understands that Tanaka et al. is providing a price quotation for a piece of manufacturing equipment, i.e. the entire tension levelling machine such as that illustrated in Fig. 7 of Tanaka, the inappropriateness of the Examiner’s rejection is apparent. Obviously the price for the one machine being quoted by the sales engineer using the Tanaka system has absolutely nothing to do with how many parts are going to be made by that machine. Perhaps the sales engineer would gladly provide a discount if the customer wanted to buy two such machines, but there is simply no discussion of the concept in Tanaka et al. and it is completely

irrelevant to the present invention which is a process for quoting prices on custom manufactured parts, not manufacturing equipment.

Claim 29

Dependent claim 29 requires that one or more of the manufacturing criteria determined by the analysis of step (c) and utilized in the cost calculation of step (d) is “identification of three-dimensional geometric features relevant to a difficulty of the manufacturing process”. This time the Examiner refers to Figs. 2-6, 22 and 26 of Tanaka. One can only wonder what it is that the Examiner is suggesting can be found in those figures that has anything to do with “identification of three-dimensional geometric features relevant to a difficulty of the manufacturing process”. And indeed when one reads all the content of those figures there is no such teaching. Keep in mind, that the products to be manufactured by the equipment of Tanaka are all predesigned products (e.g. aluminum cans) as illustrated in Fig. 11 of Tanaka, and Tanaka does not have to deal with searching for and pricing the difficulties of manufacturing some custom manufactured part.

Claim 30

Finally, claim 30, which depends from claim 29 further defines those three-dimensional features as including “at least one feature selected from the group consisting of parting lines, undercuts, pockets, protrusions, wall thickness, surface features and solid features.”

The Examiner, with reference to claim 30, makes the completely unsupported conclusion that Tanaka does teach such features, but the Examiner does not point to any specific teaching of Tanaka, as there is none.

The Obviousness Rejections

Claims 3-6, 33-37 and 54

At page 12 of the Office Action the Examiner has rejected claims 3-6, 33-37 and 54 which deal with a specific pricing formula in the form " $\text{Price} = a*V + b*H + c$." The Examiner has made the completely unsupported statement that it would be "an obvious matter of design choice to a person of ordinary skill in the art to formulate and utilize any formula to calculate the manufacturing cost because Applicant has not disclosed that the Applicant's formula provides an advantage, is used for a particular purpose, or solves a stated problem."

Nothing could be further from the truth. First, Tanaka does not disclose any formula whatsoever for calculation of manufacturing cost. Instead, the cost calculations of Tanaka are based upon pricing components of the manufacturing equipment by the use of a look-up table.

Furthermore, Applicant does disclose "an advantage", "a particular purpose", and the solution of a stated problem via the use of the formula contained in the claims in question. See page 29 line 19 through page 30 line 2 of the application which states the following:

“The value of the pricing formula of the structure set forth in Equation 1 is that we have discovered that reasonable prices can be accurately determined in a reliably profitable manner by using a formula of the structure set forth, wherein the variables correspond to the volume of the parts being constructed and the vertical height dimension of the parts as a set when oriented in the most efficient fashion.”

Claims 10-11, 27 and 32

These claims deal with particular additive processes, and the use of a particular type of CAD file. Yes those processes and file types are known, but as pointed out above, Tanaka does no CAD file analysis whatsoever.

Claims 47-50

Claim 47 requires that the program of claim 31 include “a buildset grouping program for grouping a plurality of parts making up a buildset into a plurality of subsets of parts, each subset being of a size that will fit upon an available platform area of a selected manufacturing machine”. Claims 48-50 are related.

The Examiner’s rejection of claims 47-50 under 35 U.S.C. 103 is remarkable in that Tanaka has absolutely nothing to do with quoting a plurality of components or grouping those components into buildsets. Again, the only thing Tanaka provides a price for is for a machine.

Allowable Subject Matter

The Examiner's indication that claims 25-26, 28 and 62-64 include allowable subject matter is noted with appreciation. Those claims have not been amended, however, as it is believed that the parent claims from which they depend are allowable for the reasons indicated above.

New Claims 67-73

By this amendment applicant has added new claims 67-73.

Claims 67-69 are dependent from original claim 52. New claims 70-73 are each independent claims which present somewhat modified wording of subject matter similar to that of original claim 1.

Applicant's check also includes the amount of \$239.00 to cover the additional claims fee. Any additional fees or credits regarding this amendment may be charged to Deposit Account No. 23-0035.

Conclusion

In summary, it is believed that the arguments set forth above are sound, and accordingly reconsideration of the application is requested along with an early indication of the allowance of claims 1-73.

Respectfully submitted,



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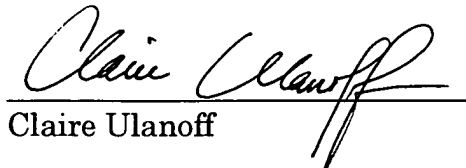
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